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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Armand P. Boisselle
Renner, Otto, Boisselle & Sklar, LLP
Nineteenth Floor
1621 Euclid Avenue
Cleveland, OH 44115

EXAMINER

MICHENER, JENNIFER KOLB

ART UNIT PAPER NUMBER

1762

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

[Handwritten signature]

Office Action Summary

Application No.

10/606,460

Applicant(s)

JOSHI ET AL.

Examiner

Jennifer K. Michener

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) 1-27 and 46-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/25/03, 3/24/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-27, drawn to a plating solution, classified in class 106, subclass 1.05.
 - II. Claims 28-45, drawn to a method of plating an aluminum substrate, classified in class 427, subclass 436.
 - III. Claims 46-49, drawn to a metal-coated article, classified in class 428, subclass 650.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the composition of Group I can be used in a materially different process than that of Group II, such as applying the composition to a non-aluminum substrate, such as iron, or by applying the composition by spraying.
3. Inventions II and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2)

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that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product of Group III can be made by a materially different process than that of Group II, such as by applying the metal coating by vapor deposition techniques.

4. Inventions I and III are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as a solution to plate substrates other than aluminum or aluminum based alloy, as required by Group III, and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

6. Because these inventions are distinct for the reasons given above and the search required for each of the Groups is not required for the other Groups, restriction for examination purposes as indicated is proper.

7. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

8. During a telephone conversation with Thomas Adams on June 2, 2004 a provisional election was made with traverse to prosecute the invention of Group II, claims 28-45. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-27 and 46-49 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

9. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 28-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Each of the independent process claims includes dependency limitations directed to the compositions of claims 1, 13, or 25. This is not clear. Independent claims may not depend from any other claims. Particularly in this case, the claims depend upon non-elected claims. This is not proper. It is not clear what elements of the composition Applicant intended to incorporate into independent process claims 28, 32, 36, 40, and 43. For the purposes of examination only and to expedite prosecution, Examiner has examined the claims with the critical limitations of the compositions read into the examined claims. However, appropriate correction to the elected independent claims is required in response to this office action.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 28-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wernick et al. (NPL cited by Applicant).

Wernick teaches depositing a zinc alloy coating on an aluminum substrate by immersing the aluminum in an aqueous acidic plating solution for a time inherently sufficient to deposit a desired coating before removal. Wernick's immersion in zinc fluoborate and nickel fluoborate teaches the zinc, nickel, and fluoride ions required by non-elected, incorporated composition claim 1. Additionally, Wernick does not teach the use of cyanide, therefore it is Examiner's position that none is present, as required. The only non-elected claim 1 composition limitation not specifically taught by Wernick is the pH of 3.5-6.5. Wernick instead teaches a pH of 3. However, Wernick teaches a similar acidic pH and, in the absence of a specific showing of criticality, it is Examiner's position

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that selection of cause-effective variable, such as an appropriate pH, would have been obvious for selection by an ordinary artisan depending on the desired plating properties of the solution.

It is well settled that determination of optimum values of cause effective variables such as these process parameters is within the skill of one practicing in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Examiner makes the above rejection with the understanding that if the pH limitation of claim 1 was not required by Applicant to be read into claim 28, that this rejection would have been made under 102.

Regarding claims 40 and 43, Wernick appears to use electroless coating baths. The other limitations of claim 40 are addressed above and those of claim 43 are addressed above and below.

Regarding claims 32 and 36, requiring specific concentrations of the zincate bath, Wernick teaches one exemplary concentration combination of substances, but teaches that the composition is "by no means critical". It is Examiner's position that concentration is a cause-effective variable. Selection of a suitable concentration for use in a zincate bath would have been within the skill of an ordinary artisan, as outlined above. It would have been obvious to one of ordinary skill in the art to optimize concentrations in a zincate bath to achieve the desired zinc alloy coating on the

aluminum substrate. Wernick's nickel fluoborate would act as Applicant's nickel-containing inhibitor.

Regarding dependent claims, Wernick teaches cleaning, etching, and desmutting, such that the cleaning/desmutting occurs with a solvent cleaner and etching occurs with an alkaline cleaner, between each of which Examiner notes that it would have been obvious to use a water rinse. It is well-known in this art to water-rinse between treatment baths so that cross-contamination does not occur between the various dip tanks.

16. Claims 28-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (4,888,218) in view of either Zelley (2,676,916) or the Applicant's admitted state of the prior art.

Suzuki teaches a process for depositing a zinc alloy coating on an aluminum substrate by immersing the substrate in an aqueous immersion plating solution (abstract; col. 2, line 52), inherently for a time sufficient to deposit the desired coating before removing. The solution of Suzuki is at a pH of 4-6, overlapping the range claimed by Applicant, and contains the zinc and fluoride ions required by the composition of non-elected claim 1. No cyanide appears to be present in the coating of Suzuki.

Overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one having ordinary skill in the art to have selected the portion of Suzuki's pH

range that corresponds to the claimed range. *In re Malagari*, 184 USPQ 549 (CCPA 1974).

What Suzuki fails to specifically teach is the inclusion of nickel or cobalt ions. However, on p. 2 of Applicant's instant specification, Applicant states that it is known in the art to use nickel, copper, or iron in a zincating bath to improve adhesion of the zinc coating. Likewise, Zelley teaches that the use of cobalt or nickel in zinc baths forms a uniform, dense, adherent coating on the surface of plated aluminum substrates.

Since Suzuki teaches depositing zinc alloys onto aluminum substrates by zinc bath and Zelley and Applicant's admitted state of the prior art teach that inclusion of nickel or cobalt in zinc baths for plating aluminum substrates enhances adhesion of the deposit, Zelley or the admitted state of the art would have reasonably suggested the use of nickel or cobalt in the zinc bath of Suzuki. It would have been obvious to one of ordinary skill in the art to use the teachings of Zelley or the admitted prior art in the method of Suzuki to provide Suzuki with a more dense, uniform, adherent coating of zinc alloy.

Regarding claims 40 and 43, Suzuki uses electroless coating baths. The other limitations of claim 40 are addressed above and those of claim 43 are addressed above and below.

Regarding claims 32 and 36, requiring specific concentrations of the zincate bath, Suzuki teaches 5-120 g/l of zinc fluoride (col. 3, line 25), overlapping the ranges

required for each of these ions. Overlapping ranges are obvious for those reasons outlined above. While Suzuki in view of Zelley or the admitted prior art does not provide the concentration of nickel and/or cobalt, it is Examiner's position that concentration is a cause-effective variable. Selection of a suitable concentration for use in a zincate bath would have been within the skill of an ordinary artisan, as outlined above. It would have been obvious to one of ordinary skill in the art to optimize concentrations of nickel or cobalt in a zincate bath to achieve the desired zinc alloy coating on the aluminum substrate. Zelley's nickel salt would act as Applicant's nickel-containing inhibitor, with concentration being optimizable for those reasons above.

Regarding the dependent claims, Suzuki teaches cleaning and desmutting organic contaminants with a solvent cleaner and then etching with a caustic agent (paragraph bridging columns 3-4). Suzuki teaches some rinsing steps, but does not specify that they occur between each process step. However, it is well-known in this art to water-rinse between treatment baths so that cross-contamination does not occur between the various dip tanks. Rinsing steps would have been obvious for those reasons outlined above.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer K. Michener whose telephone number is (571)

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272-1424. The examiner can normally be reached on Monday through Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on 571-272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jennifer Kolb Michener
Patent Examiner
Technology Center 1700
June 25, 2004